

Temperament as a Moderator of the Relation  
Between Interparental Conflict and Maladjustment  
in Children from Divorced Families

by

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A Thesis Presented in Partial Fulfillment  
of the Requirements for the Degree  
Master of Arts

Approved April 2016 by the  
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May 2016

## ABSTRACT

This cross-sectional study examined whether the temperament dimensions of negative emotionality, positive emotionality, and impulsivity moderated the relation between interparental conflict and children's internalizing and externalizing problems. The sample consisted of 355 divorced mothers and their children (9-12 years old) who participated in a randomized controlled trial of a preventive parenting intervention for divorcing families. Children provided reports of their experiences of interparental conflict and internalizing and externalizing problems; mothers provided reports of children's temperament and internalizing and externalizing problems. The relations were examined separately for child report and mother report of outcomes using multiple regression analyses. Results found no support for the interactive effect of interparental conflict and temperament dimensions on children's internalizing or externalizing problems. Consistent with an additive model of their effects, interparental conflict and temperament dimensions were directly and independently related to the outcomes. There was a significant, positive effect of interparental conflict and negative emotionality on children's internalizing and externalizing problems. Positive emotionality was significantly, negatively related to internalizing and externalizing problems. Impulsivity was significantly, positively related to externalizing problems only. The patterns of results varied somewhat across mother and child report of interparental conflict on externalizing problems and positive emotionality on internalizing problems. The results of this study are consistent with the previous research on the significant main effects of interparental conflict and temperament dimensions on children's internalizing and externalizing problems. These findings suggest that children's environment and

intrapersonal characteristics, represented by children's experiences of interparental conflict and temperament, both uniquely contribute to children's post-divorce internalizing and externalizing problems.

## ACKNOWLEDGMENTS

To Dr. Sharlene Wolchik, I extend my deepest appreciation and gratitude for not only supporting me through this project but for your continued mentorship during one of the most important and difficult phases of my life. I would also like to extend a special thanks to Dr. Hye Won Suk for all her guidance in quantitative methods and expertise in ways to best apply and bridge theory with analytic strategies. I am also very appreciative of the thoughtful feedback, guidance, and expertise from Dr. Kathryn Lemery who has challenged me to think critically. It has been an honor to have the three of you on my committee, and I am grateful for all of your involvement on this project.

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## **Introduction**

The negative effects of parental divorce on children's outcomes are extensively documented. Parental divorce has been associated with increased risk for problems including greater internalizing (Amato, 2001; Amato & Anthony, 2014; Amato & Keith, 1991), externalizing (Amato, 2001; Amato & Anthony, 2014; Amato & Keith, 1991), and substance use problems (Furstenberg & Teitler, 1994; Hoffmann & Johnson, 1998); lower social competence (Amato, 2001; Amato & Keith, 1991; Hetherington et al., 1992), self-control (Amato & Anthony, 2014), and interpersonal skills (Amato & Anthony, 2014); health problems (Amato & Keith, 1991; Stattin & Romelsjo, 1995; Troxel & Matthews, 2004); early sexual behavior (Donahue et al., 2010) and teenage pregnancy (McLanahan, 1999); low academic performance (Amato & Anothony, 2014) and school dropout (Curtis & McMillian, 2008; Donahue et al., 2010; McLanahan, 1999; Schwartz et al., 1995). Many children who experience divorce undergo a very difficult family transition, which is often associated with numerous stressful experiences, including interparental conflict (IPC), fewer material resources, decreased emotional and tangible parental support, and decreases in time spent with one or both parents. Of these stressful events, interparental conflict is one of the most damaging aspects of divorce (Kelly, 2012).

Despite the array of stressful events that can happen during this transition, approximately 65%-75% of children do *not* experience significant mental health problems after parental divorce (Amato, 2001; Wolchik, Sandler, Millsap, & Luecken, 2006). This wide variability in children's responses to parental divorce has prompted researchers to identify factors that account for these differences. Much of this research

has focused on interpersonal factors. Some well-documented interpersonal protective factors include high-quality, responsive parent-child relationships with both mothers and fathers (King & Sobolewski, 2006; Sandler et al., 2012; Wolchik, Wilcox, Tein, & Sandler, 2000) and high levels of consistent discipline (Wolchik et al., 2000) in the face of post-divorce-related stressors. Much less research has been focused on intrapersonal or individual attributes like coping or child temperament (Wolchik, Mahrer, Tein, & Sandler, 2015) or how intrapersonal factors, interpersonal factors, and contextual factors interact with each other to affect children's outcomes. The current study examines the interplay between children's post-divorce experience of IPC and temperament on children's internalizing and externalizing problems. The following sections focus on how IPC affects these outcomes, definitions of temperament, how temperament and conflict may interact to predict internalizing and externalizing problems, and the contributions made by the proposed study.

### **Interparental Conflict and Children's Outcomes**

Parental conflict is likely to occur in divorcing families because of the coordination of efforts and finances that is required after divorce (Masheter, 1991). Although it is common for divorcing parents to exhibit minimal and tapering conflict within the few years following the divorce, approximately 25% of couples continue their high conflict relationship well past this period (Hetherington, Bridges, & Insabella, 1998; Kelly, 2012; Maccoby & Mnookin, 1992).

Interparental conflict is one of the most damaging aspects of divorce for several reasons. Children are more likely to feel torn between their parents while witnessing the two people they love having difficulties getting along and in some cases, hating each

other. Also, parents may intentionally or unintentionally attempt to alienate a child from the other parent. Further, children who feel caught in the middle of their parents' arguments or who feel that they are the cause of their parents' arguments are in a particularly difficult position, and feel guilt along with sadness and anger (Kelly, 2012). These aspects of IPC are particularly common and impactful for children from divorced families.

Interparental conflict is consistently linked with child internalizing and externalizing problems (Amato & Keith, 1991; Buehler et al., 1997; Cummings & Davies, 1994, 2002; Davies & Cummings, 1994; Emery, 1982, 1999; Grych & Fincham, 1990, 2001; Hetherington, Cox, & Cox, 1978; Ingoldsby, Shaw, Owens, & Winslow, 1999; Johnson & O'Leary, 1987; Johnston, Gonzalez, & Campbell, 1987; Shaw & Emery, 1987), as well as poor functioning in other domains, including social skills (Strassberg, Dodge, Bates, & Pettit, 1992) and academic achievement (Long et al., 1988), in both two-parent and divorced families (Sarrazin & Cyr, 2008) and across gender and developmental stage (Shaw, Emery, & Tuer, 1993). Children exposed to severe and frequent parental conflict are at a higher risk of developing behavioral and emotional problems (Buehler et al., 1997; Tschann, Flores, Pasch, & Martin, 1999).

### **Theories of IPC's Effect on Children's Outcomes**

There are several theories that focus on how IPC affects children's outcomes. One of the leading process-oriented theories, the cognitive-contextual framework, was proposed by Cummings and Cummings (1988) and further developed by Grych and Fincham (1990). This framework proposes that the effect of IPC is dependent on short-term primary experiences and observations of IPC as well as secondary factors related to

how children process and perceive those experiences over time. The attributions one assigns to the details and emotions associated with these experiences are viewed as affecting the child's coping skills and determine whether or not a child will develop adjustment problems. Essentially, it is not the mere occurrence and severity of interparental conflict but how the child perceives the conflict that determines how a child adjusts to IPC.

Within the cognitive-contextual framework, the conceptualization of the process or mechanism through which IPC operates to influence children's outcomes has been labeled as the emotional security hypothesis (Davies & Cummings, 1994; Davies & Woitach, 2008). This theory posits that children who are exposed to IPC experience increased insecurity and decreased feelings of safety, especially within the parent-child relationship. Children seek to restore feelings of safety and security through basic attachment-seeking behaviors intended to increase parental attention. For example, what may begin as simple acting out to increase parental attention may escalate into more serious externalizing problems. This risk is heightened in families with high conflict where children's perceived threat is great. This hypothesis has since been refined to include three mechanisms through which emotional security is compromised in the face of IPC: 1) children's perceived threat appraisals, 2) physiological changes to children's stress response system, and 3) unique operations of children's social defense systems and attachment systems in organizing approach goals and coping behaviors (Davies & Martin, 2014).

Bandura's social learning theory also contributes to our understanding of the effects of IPC on children's outcomes. In this model, parents who handle conflict

appropriately and model this behavior enable their children to develop healthy conflict management skills. Children reared in higher conflict families with parents who lack skills for managing conflict appropriately may develop similar maladaptive skills, such as fighting to resolve conflicts, through parents' modeling of conflict and the meaning they extract from it (Bandura, 1973, 1977, 1989). Additionally, parents who engage in high levels of IPC are likely to approach conflict management with their children in a similar manner. This increases the likelihood that children's and parents' behaviors and emotional states will bidirectionally affect one another in a negative way (Emde & Easterbrooks, 1985).

The theory of spillover effects provides another explanation of how IPC affects children's outcomes. From this perspective, IPC decreases positive parenting practices, and poor parenting leads to internalizing and externalizing problems. Spillover effects have been widely documented (Amato & Sobolewski, 2001; Tschann, Johnston, Kline, & Wallerstein, 1989). For example, parents who experience high levels of conflict with their partners use more harsh and inconsistent discipline practices and show less affection toward their children than parents not experiencing significant conflict (Hetherington, Cox, & Cox, 1979; Hetherington & Stanley-Hagan, 1999; Sigal, Sandler, Wolchik, & Braver, 2011). Spillover effects have also been associated with fathers' but not mothers' increased psychological control and insensitivity to child negative affect (Davies, Sturge-Apple, Woitach, & Cummings, 2009).

It is plausible that IPC influences children's outcomes through multiple pathways including threats to children's emotional security, exposure to models of inappropriate conflict management, and decrements in parenting due to the spillover of the effects of

conflict. It is important to note that all these models emphasize the importance of examining conflict through a family systems and process-oriented approach and that children are not equally affected by IPC exposure. Cummings and Davies (2002) identified four directions for future research on IPC that inform the current study: (1) better understanding of the different aspects of marital conflict and their effects on children, (2) identification of physiological response patterns and their role in accounting for the relation between marital conflict and child outcomes, (3) better conceptualization of how contextual factors (e.g., child temperament, parent marital status, family history) affect the relation between marital conflict and child outcomes, and (4) examination of child outcomes as multidimensional constructs and more than just clinical diagnoses. By examining how temperament interacts with IPC to predict internalizing and externalizing problems in children who have experienced parental divorce, the current study addresses the last two of these directions.

### **Defining Temperament**

Temperament is generally defined as the affective arousal, expression, and regulation components of personality that are physiologically derived (Goldsmith et al., 1987). Rothbart's (1989) model of temperament proposed two reactive systems that act independently to produce negative and positive affect. Self-regulation, another important component of temperament, involves the processes through which we control our negative and positive emotions through regulating attention, impulsivity, and inhibition (Goldsmith & Rothbart, 1991). Differences in temperament traits represent individual differences among people's reactivity and ability to regulate negative and positive emotions. Several dimensions of temperament have been shown to relate to internalizing

and externalizing problems (Rothbart & Bates, 2006; Sanson, Hemphill, & Smart, 2004); in general, negative reactivity and low effortful control elevate risk for both internalizing and externalizing problems, and positive emotionality and high effortful control are related to fewer internalizing and externalizing problems (Kiff, Lengua, & Zalewski, 2011).

### **Interaction of Dimensions of Temperament and IPC**

The diathesis-stress (Ingram & Luxton, 2005), differential susceptibility (Belsky & Pluess, 2009), and goodness of fit (Thomas & Chess, 1981) frameworks provide support for the notion that certain child characteristics will serve to either mitigate or enhance children's risk of developing adjustment problems in the face of environmental influences. Five mechanisms representing different ways through which these dimensions of temperament may interact with environmental influences and operate to predict children's adjustment have been proposed: 1) children who differ on dimensions of temperament receive differential treatment by caregivers/teachers, 2) children who differ on dimensions of temperament seek out different environments, 3) children who differ on dimensions of temperament differ in their goodness or pooriness of fit with environmental demands, 4) children who differ on dimensions of temperament respond to similar stressors in different ways, and 5) children who differ on dimensions of temperament use different coping strategies (Wachs, 2006).

The two mechanisms that are most relevant to the proposed study involve response to stress and differences in coping styles. Temperament may affect how children express emotional reactivity and dysregulated attachment. More specifically, the behaviors children exhibit to regain emotional security may be influenced by their



temperamental style (Morrongiello & Corbett, 2013). Temperament may also affect coping styles. For example, several studies have found associations between different temperament dimensions and children's coping styles in school-aged children, specifically between negative emotionality and impulsivity predicting greater avoidant coping and positive emotionality and self-regulation predicting more active and adaptive coping styles (Lengua & Long, 2002; Lengua, Sandler, West, Wolchik, & Curran, 1999). These associations have also been found to be mediated through children's threat appraisals (Lengua et al., 1999). Children's appraisals of perceived threat may also play a role in the compensatory mechanisms the child chooses to access both independently and within the parent-child relationship when experiencing IPC (Davies & Martin, 2014). Temperament in particular influences not only how children perceive stressful situations but also how they select what coping strategies to use to express emotional reactivity, both through automatic and effortful processes (Compas, Connor-Smith, & Jaser, 2004).

There are three published studies that have examined temperament as a moderator of IPC's relation to children's internalizing and externalizing problems. Studying infants in two-parent families, Pauli-Pott and Beckmann (2007) found that negative emotionality, which was measured through a laboratory task at age 4 months, interacted with parents' reports of interparental conflict on the Conflict Behavior scale of the Marital Relationship Questionnaire to predict parent report of children's behavior problems at 30 months old. There were no significant direct effects of negative emotionality or interparental conflict with the inclusion of the significant interactive effect.

A second study by Hentges, Davies, and Cicchetti (2015) assessed toddler temperament in a similar laboratory battery to the previous study and used independent

raters of infant reactions to temperament eliciting events to create a variable of temperamental irritability, defined by aspects of anger, frustration, and hostility. This sample included two-parent and divorced families, as families were recruited from community agencies that helped families and the family court system. Assessments were conducted at two time points one year apart. Interparental conflict scores were a composite of five different measures of conflict that captured both negative and positive conflict management. Similar to the previous study, toddler temperamental irritability moderated the relation between interparental conflict and mother report behavior problems on the CBCL, specifically Attention Deficit/Hyperactivity Problems and Oppositional Defiant Problems.

In a sample of predominantly (88%) married two-parent families, Davies and Windle (2001) found that when examined longitudinally, difficult temperament traits showed potentiating influences on adolescents' trajectories of delinquency and depressive symptoms. IPC was assessed as a combination of children's exposure to IPC and parents' marital satisfaction with a larger emphasis on the exposure to IPC component. Scores on the Revised Dimensions of Temperament Survey were used to construct four dimensions of temperament, adaptability, rhythmicity, task orientation, and general activity. Children were first assessed at an average age of 15.5 years old, and three additional assessments were conducted at 6-month intervals (four total assessments spanning two years). Temperament was assessed at the first and second assessment while child outcomes of depressive symptoms and delinquency were measured at times two, three, and four. Task orientation interacted with IPC to predict levels of delinquency and depressive symptoms across the three time points. When task orientation was low, children with high IPC

showed significantly higher levels of delinquency and depressive symptoms than those with low IPC. When task orientation was high, children did not significantly differ in their levels of delinquency and depressive symptoms based on levels of IPC. A quadratic relation was found between rhythmicity and IPC over time to predict trajectories of delinquency; delinquency was highest for those with high IPC and poor rhythmicity and lowest for those with low IPC and good rhythmicity. Adaptability and activity level did not significantly moderate the relation between IPC and delinquency or depressive symptoms, nor did they directly predict delinquency or depressive symptoms.

Although only three studies have assessed the interaction of IPC and temperament in predicting children's internalizing and externalizing problems specifically, other studies have looked at constructs that are similar to IPC. For example, four other studies have examined the interaction of family conflict and temperament on behavior problems including internalizing and externalizing problems (Ramos, Guerin, Gottfried, Bathurst, & Oliver, 2005; Tschann, Kaiser, Chesney, Alkon, & Boyce, 1996; Whiteside-Mansell, Bradley, Casey, Fussell, & Conners-Burrow, 2009) or the interaction of stressful life events and temperament on externalizing problems (Schermerhorn et al., 2013). The results of these studies provide support for the hypothesis that temperament and IPC will interact to predict internalizing and externalizing problems.

With the limited research on how IPC and related constructs, such as family conflict, and temperament interact to predict children's internalizing and externalizing problems, there are many questions to be addressed. First, no published studies have examined the interaction between temperament and IPC in a sample that consisted entirely of divorced families, where the risk of IPC is greater. Second, the studies that

contain similar constructs to IPC had samples with widely varying family compositions ranging from entirely married to entirely divorced, with most samples consisting of a majority of two-parent households. Third, with the exception of the study by Davies and Windle (2001), researchers have examined young children (1-10 years old). Fourth, the dimensions of temperament that were examined varied widely from an easy versus difficult classification to specific dimensions, such as rhythmicity and task orientation. Finally, most studies focused on the risk-enhancing aspects of temperament whereas the risk-mitigating potential of dimensions of temperament has not been examined.

### **Contributions of the Current Study**

The current study aims to fill some of these gaps in the literature by examining whether dimensions of temperament moderate the relation between IPC and internalizing and externalizing problems in a sample of divorced families with children in late childhood to early adolescence. More specifically, the study will focus on three dimensions of temperament that have been shown to be directly and indirectly related to children's adjustment problems (Rothbart & Bates, 2006) and may moderate the relation between IPC and internalizing and externalizing problems: impulsivity, negative emotionality, and positive emotionality. This study poses three hypotheses about the ways in which IPC and temperament may interact to predict internalizing and externalizing problems. First, IPC is expected to be more strongly related to internalizing problems and externalizing problems for children high in impulsivity than those low in impulsivity (see Figure 1). Impulsive children may be to less able to regulate their emotional and behavioral responses to IPC and thus more likely to demonstrate fewer adaptive coping strategies (Lengua et al., 1999) which can lead to more adjustment

problems. Second, IPC is expected to be more strongly related to internalizing problems and externalizing problems for children high in negative emotionality than those low in negative emotionality (see Figure 2). Children high in negative emotionality may experience more negative arousal or more negative cognitions, including increased perceived threat, avoidant coping (Lengua & Long, 2002; Lengua et al., 1999), and blame about IPC, which may lead to more adjustment problems. Third, IPC is expected to be less strongly associated with internalizing problems and externalizing problems for children high in positive emotionality than those low in positive emotionality (see Figure 3). Children high in positive emotionality may be less sensitive to negative environmental cues or may maintain a relatively positive emotional response despite exposure to IPC and thus may be less affected by IPC than children low in positive emotionality. This is hypothesized due to the association of positive emotionality with increased active coping strategies including problem solving, cognitive restructuring, and seeking understanding (Lengua et al., 1999).

## **Methods**

### **Participants**

The sample consists of 355 children (ages 9-12 years old) and their mothers who had experienced divorce within the past 2 years. Data for this study were collected between February of 1992 and September of 1993. All families participated in the New Beginnings Project (NBP), a randomized trial examining the efficacy of an intervention for divorced mothers and their children (Wolchik et al., 2000). Families were recruited primarily by sending letters to parents identified through random selection of court records of divorce cases in the Phoenix, Arizona metropolitan area. Initial eligibility

criteria were assessed by phone. Families who were invited to complete a pretest interview and participate in the NBP trial met all of 10 criteria: (1) divorce decree was granted within the previous 2 years, (2) primary custodial parent was female, (3) there was at least one child between the ages of 9 and 12 who resided primarily with the mother (at least 50% of the time), (4) neither the mother nor children were currently in treatment for psychological problems, (5) mother had not remarried, did not have a live-in partner, and did not plan to re-partner during the trial, (6) custody arrangement was predicted to remain stable during the trial, (7) family lived within a one-hour traveling distance of the site where the program was being delivered, (8) mother and child could complete assessments in English, (9) child was not in a special education program for being mentally disabled or having any learning disabilities, and (10) if children had a diagnosis of attention deficit disorder, they must be taking medication. For families with multiple children who fell within the age range, one child was randomly selected to be interviewed. The initial eligibility criteria were reassessed in the pretest interview and families that no longer met criteria were excluded at this time. Also, families were excluded if the child scored above 17 (Burbach, Farha, & Thorpe, 1986) on the Children's Depression Inventory (Kovacs, 1981), endorsed an item about suicidal ideation, or had a score above the 97th percentile on the Externalizing subscale of the Child Behavior Checklist (Achenbach, 1991b). Families were referred for appropriate treatment in these instances.

Those who met the initial eligibility criteria ( $n = 671$ ) were recruited to complete a pretest interview and participate in the study. Pretest data were collected on 355 families (53%). Of those families, some were found to be ineligible at the pretest

interview while others voluntarily withdrew from the study before random assignment. After the pre-test was administered, 240 families were randomly assigned to one of three conditions: a mother-only program (n=81), concurrent but separate mother and child programs (n=83), or a literature control condition (n=76). The mother-only NBP intervention consisted of 11 group and 2 individual sessions designed to improve post-divorce parenting. The dual-component program consisted of the mother-only program and an 11-session child program focused on teaching coping skills. Families in the literature control condition received three books on children's adjustment after divorce.

**Sample characteristics.** The average age of children in the study was 10.4 years (SD = 1.1). Forty-nine and four tenths percent of the sample were females. Mothers' mean age was 37.1 years (SD = 5.0). The majority of the mothers in the sample were Caucasian (86%), 8.7% were Hispanic, 2.5% were African American, 1.1% were Native American, Asian, or Pacific Islander, and 1.7% were families of other racial or ethnic backgrounds. The modal level of mothers' education was the completion of some college (48.9%), and mothers' median annual income fell between \$20,000 and \$25,000 (note that the Arizona median income for 1992 and 1993 was \$29,358 and \$30,510 respectively; "Median Household Income," 2014).

The average time since the divorce was 1.0 years (SD = 0.5) while the average time since physical separation was 2.3 years (SD = 1.6). All children lived with their mothers at least 50% of the time. In 65% of the families, the mother had sole legal custody of the children, whereas 34% of the families had joint legal custody (i.e., both parents retained legal authority to make decisions concerning the child), and 1% of the families had split custody arrangements (i.e., siblings were in the legal custody of

different parents). The total number of children in the home ranged from 1 to 7 ( $M = 2.3$ ,  $SD = 1.0$ ).

## **Procedure**

Data were collected at five time points: pretest, posttest, six months after posttest, six years after posttest, and 15 years after posttest. For this study, data from the pretest were used. After confidentiality was explained to mothers and children, mothers signed consent forms and children signed assent forms. Interviews occurred in two phases. First, interviews were conducted in the family's home, with mothers and children being interviewed individually by trained staff. All measures were collected during the in-home interview with the exception of the mother's report of temperament measures. These paper-and-pencil questionnaires were completed after the interview and returned by mail or completed approximately two weeks later at the orientation session that was conducted at the research center. After all pretest measures had been completed, families were randomly assigned to an experimental condition and provided with an orientation about their condition. Families received \$45 compensation for participating in the pretest interviews and an additional \$10 for completing the temperament questionnaires.

## **Measures**

**Interparental conflict.** Although child and mother report of IPC was collected, because of the role of children's perspectives in most of the theoretical models of the relation between IPC and adjustment problems, the current study used children's report of IPC. Children completed the 6-item Frequency and 7-item Intensity subscales of the Children's Perception of Interparental Conflict Scale (Grych, Seid, & Fincham, 1992). Children rated whether and how often IPC occurred by choosing from three response



options (True, Sort of true, and Not true). An overall total mean score and two mean subscale scores were derived, where higher scores indicate greater conflict. The subscales were highly correlated according to the Grych et al. (1992) study, and in two previous samples, Grych et al. found the two subscales to be correlated at .68 and .62. In the current study, the two subscales are correlated .66. The total score was used in analyses. The reliability and validity of this measure have been well established and tested against other commonly used measures of IPC (i.e., O'Leary Porter Scale and the Conflict Tactics Scale; Grych et al., 1992; Porter & O'Leary 1980; Straus, 1979). This measure has been shown to predict children's internalizing and externalizing problems (Grych et al., 1992). In two previous samples, reliability alphas were .70 and .68 for the Frequency subscale and .82 and .80 for the Intensity subscales (Grych et al., 1992). In the current study, alphas were .82, .70, and .70 for the total score, Frequency, and Intensity subscales, respectively.

**Children's externalizing problems.** Children completed 30 items from the Aggression and Delinquency subscales of the Youth Self Report (Achenbach, 1991b). An overall externalizing score was calculated. Adequate reliability and validity for these subscales have been reported (Achenbach, 1991a, 1991b). Alpha was .84 in the current study.

Mothers completed the 33-item Externalizing subscale of the Child Behavior Checklist (CBCL; Achenbach, 1991a; Achenbach & Edelbrock, 1983). Adequate reliability and validity have been reported (Achenbach, 1991a, 1991b). One item asking whether the target child abuses drugs had zero variance and was removed from the

reliability analysis but was included in the overall externalizing score. Alpha was .89 in the current study.

**Children's internalizing problems.** Children completed the Children's Depression Inventory (CDI; Kovacs, 1981), a 27-item, multiple-choice scale that assesses affective, cognitive, and behavioral symptoms of childhood depression that have occurred in the last two weeks. Scores on the CDI have been shown to discriminate clinically depressed from non-depressed psychiatric patients (Kovacs, 1981; Lobovitz & Handal, 1985) and from non-referred children (Carey, Faulstich, Gresham, Ruggiero, & Enyart, 1987; Saylor, Finch, Spirito, & Bennett, 1984). Scores have also been shown to be stable over one month ( $r = .72$ ). Internal consistency reliabilities ranged from .71 to .94 (Kovacs, 1981; Saylor et al., 1984). Children also completed the Revised Children's Manifest Anxiety Scale (RCMAS) which includes 28 items assessing anxiety symptoms. This measure has demonstrated adequate reliability (Reynolds & Richmond, 1978), test-retest correlations (.68; Reynolds, 1981), and validity (Reynolds, 1980a, 1980b, 1981; Reynolds & Richmond, 1978). The CDI and the RCMAS were significantly correlated in the current sample ( $r = .61$ ) and were combined to form a composite measure of internalizing problems by first standardizing the measure scores and computing an average score.

Mothers completed the 31-item Internalizing subscale of the CBCL which has been demonstrated to have adequate reliability and validity (Achenbach, 1991a; Achenbach & Edelbrock, 1983). An overall Internalizing subscale score was derived. Alpha in the current sample was .88.

**Temperament.** Mothers are typically seen as the best reporters of most types of children's behaviors and response patterns because of their familiarity with the child across a range of contexts and ability to better describe what the child is like typically. Research on temperament assessment and measures have shown that mothers are able to give relatively objective and stable reports of children's temperament when comparing parent's reports on questionnaires to those of observational or laboratory ratings (Bates, 1987; Kagan & Fox, 2006; Rothbart & Mauro, 1990). Thus, mothers' reports were used in the current study. Mothers completed measures of three different dimensions of temperament: impulsivity, negative emotionality, and positive emotionality.

***Impulsivity.*** Impulsivity was measured using the 13-item Impulsivity subscale of the Child Behavior Questionnaire (Rothbart, Ahadi, Hershey, & Fisher, 2001), which measures the speed of response initiation (e.g., "Usually rushes into an activity without thinking about it," and "Sometimes interrupts others when they are speaking"). Items are rated on a 7-point Likert scale from 1 (*extremely untrue*) to 7 (*extremely true*). This measure has demonstrated adequate reliability and validity across reporters, stability over time, and is also highly correlated with scales of parent-reported socialization-relevant traits (i.e., aggressiveness, empathy, guilt/shame, help-seeking, and negativity) designed to assess similar traits to this dimension of temperament (Rothbart et al., 2001). An alpha of .78 has been reported (Goldsmith & Rothbart, 1991; Rothbart et al., 2001). In this sample, alpha was .74.

***Negative emotionality.*** The 9-item Emotionality dimension of the Emotionality, Activity, and Sociability (EAS) Temperament Survey for Children assesses the frequency of negative emotions (e.g., anger, fear), the intensity of the response, and the threshold of

the response (e.g., “I frequently get distressed,” and “I get troubled by everyday events”). This measure was constructed through factor analytic methods based on the theory that temperament is a relatively stable trait from infancy throughout one’s life (Buss & Plomin, 1975, 1984). For the emotionality dimension, an alpha of .80 has been reported (Rowe & Plomin, 1977). Adequate convergent and discriminant validity between different temperament measures including the Behavioral Style Questionnaire (BSQ) and the Dimensions of Temperament Scales (DOTS) using a multitrait-multimethod (MTMM) approach of comparing matrices of correlations between measures and temperament dimensions has been demonstrated (Goldsmith, Rieser-Danner, & Briggs, 1991). In the current sample, the alpha was .78.

***Positive emotionality.*** Positive emotionality was assessed using the 7-item Positive Mood scale of the Revised Dimensions of Temperament Survey (DOTS-R; Windle & Lerner, 1986), which assesses the frequency of smiling and laughter and general cheerful or happy mood (e.g., “My child laughs and smiles at a lot of things,” and “My child’s mood is generally cheerful”). An alpha of .91 has been reported for a sample of preschoolers, and an alpha of .80 has been reported for a sample of elementary school children; adequate test-retest reliability (.63) has been reported (Windle & Lerner, 1986). Adequate construct, convergent, and discriminant validity of the DOTS-R has been shown (Windle et al., 1986) through its relations to the Emotionality, Activity, Sociability, and Impulsivity-II (EASI-II; Buss & Plomin, 1975) and the Eysenck’s Personality Inventory (EPI; Eysenck & Eysenck, 1968). Also, the DOTS-R positive mood dimension significantly predicted child and adult outcomes including substance use (Wills, DuHamel, & Vaccaro, 1995), competence and self-worth in a sample of early

adolescents (Windle et al., 1986) and competence and depressive symptoms in a sample of late adolescents (Windle et al., 1986). In the current sample, alpha was .89.

## **Results**

### **Preliminary Analysis**

A problem that arises in studies of temperament–adjustment relations is the potential overlap in measures. To avoid this, steps were taken to minimize overlap between measures of the temperament dimensions of impulsivity, negative emotionality, and positive emotionality and the adjustment measures of internalizing and externalizing problems. All the temperament and internalizing and externalizing problems items were examined for overlap. If overlap between items was identified, it was planned that the item on the measure of internalizing problems or externalizing problems would be deleted because these measures contain more items than the temperament measures and thus would be more likely to maintain adequate reliability and validity after items were deleted. To determine if any items met criteria for elimination, the first author and a clinical psychologist each independently rated the items, identified any items that warranted further examination, and discussed the items in question to reach consensus on whether or not to eliminate those items. No items were viewed as similar enough to justify deletion.

**Descriptive statistic summary.** Table 1 shows the descriptive statistics of the study variables and the covariates. The skewness and kurtosis of all study variables fell within the acceptable range (skewness cut-off -2 and 2 and kurtosis cut-off -7 and 7; West, Finch, & Curren, 1995). Pearson correlations among study variables are presented in Table 2. Relations between study variables were stronger within the same reporter

compared to the cross reporter relations. IPC was significantly correlated with all predictor and outcome variables, with the exception of positive emotionality. Negative emotionality was significantly correlated with all study variables. Positive emotionality was significantly related to all variables, except for IPC. Impulsivity was significantly correlated with all study variables except for mother and child report of internalizing problems. Child and mother report of externalizing problems were significantly correlated with all study variables. Child and mother report of internalizing problems were significantly correlated with all study variables, with the exception of impulsivity.

**Identification of covariates.** Potential covariates included the following variables: time since divorce and separation, race, child gender, child and mother age, number of children in the home, total number of children in the family, maternal education, household income (gross income), and per capita income. Research has found that these variables are related to children's post-divorce adjustment problems (Amato & Keith, 1991; Emery, 1999; Glenn & Supancic, 1984; Hetherington et al., 1998; Hetherington et al., 1992; Kurdek, 1981; Pett, 1982; Shaw & Emery, 1987). Pearson correlations were run between all potential covariates and outcome variables, with one exception; Spearman correlations were run between maternal education and outcome variables. As shown in Table 3, child's age, total number of children in the family, and mother's education level were significantly related to child report of internalizing problems. Child's gender was significantly related to child and mother report of externalizing problems, and household income was significantly related to mother report of internalizing and externalizing problems. The variables that were significantly related

to any outcome variable (i.e., child age, child gender, total number of children, maternal education, and household income) were entered as covariates in all regression models.

**Outlier analysis.** Outlier analysis was used to identify extreme cases in the data set. Outliers were identified using several measures of distance, leverage, and influence. Mahalanbois distance, a measure of leverage that calculates the distance between a specific outlier's values on the predictor variables and the centroid of the independent variables, was examined by looking for any cases with a distance that was relatively larger than the majority of the other values and using suggested cutoff scores based on the sample size and number of parameters (Stevens, 1984). Next, each case's studentized residual, or measure of distance where each residual is divided by its own standard error, was considered, where values greater than 2 or less than -2 indicate outliers (Cohen, Cohen, West, & Aiken, 2003). Outliers were also identified by examining Cook's distance, a measure of global influence, and the Difference in Fits (DFFITS), which determines the influence of cases on the overall regression model. Those with a relatively larger Cook's distance value or a DFFITS value greater than or equal to one were to be followed up with an analysis of Difference in Betas, a measure of the change in regression coefficients (DFBETAS). Cases with a DFBETAS value greater than 1 were considered influential (Cohen et al., 2003; Neter, Wasserman, & Kutner, 1989). Finally, partial regression plots and Q-Q plots were visually examined to determine if any cases rendered further examination based on subjective opinion. No cases met any of these criteria. Also, cases were to be dropped if significant problems were noted during the assessment. If significant problems were documented, it was planned that statistical analyses would be run twice, once with the extreme case included and another time with

the case excluded to see if the results were significantly affected by its inclusion. No significant problems were documented.

### **Primary Analyses**

To examine the main and interactive effects of IPC and temperament on internalizing and externalizing problems, 12 multiple regression analyses were run using MPlus software (Muthén & Muthén, 1998-2011). For each model, the following predictors were included: 1) covariates; 2) IPC; 3) temperament dimension; and 4) interaction of IPC and temperament dimension. Separate models were run for each temperament dimension (3), outcome (2), and reporter of those outcomes (2). Interaction terms between IPC and temperament dimensions were created by first centering the corresponding predictor variables (subtracting the mean score from each individual score) and then computing the product of those two centered predictors (Aiken & West, 1991). Missing data were handled by using maximum likelihood methods (Enders, 2001).

**Regressions for externalizing problems.** The first set of models tested whether the temperament dimensions moderated the relation between IPC and externalizing problems, controlling for child age, child gender, total number of children, maternal education, and household income.

**Impulsivity.** As shown in Table 4 and Table 5, the interactive effect of IPC and impulsivity was not significant for either child report ( $p = .984$ ) or mother report ( $p = .913$ ) of externalizing problems. However, there was a significant main effect of IPC for child report ( $p < .01$ ) and a significant main effect of impulsivity for both child and mother report of externalizing problems ( $ps < .01$ ). IPC was significantly, positively related to child report of externalizing problems. Impulsivity was significantly, positively



related to externalizing problems. The effect of the covariate, gender, was significantly related to mother report of externalizing problems ( $p < .05$ ) and approached significance for child report of externalizing problems ( $p = .054$ ); males had higher externalizing problems.

**Negative emotionality.** The interactive effect of IPC and negative emotionality was not significant for either child report ( $p = .402$ ; see Table 6) or mother report of externalizing problems ( $p = .839$ ; see Table 7). However, there was a significant main effect of IPC for child report of externalizing problems ( $p < .01$ ) and a significant main effect of negative emotionality for both child and mother report of externalizing problems ( $ps < .01$ ). IPC and negative emotionality were both significantly, positively related to externalizing problems. The effect of the covariate, gender, was significantly related to child and mother report of externalizing problems ( $p < .05$ ); males had higher externalizing problems.

**Positive emotionality.** The interactive effect of IPC and positive emotionality was not significant for either child report ( $p = .600$ ; see Table 8) or mother report of externalizing problems ( $p = .191$ ; see Table 9). However, there was a significant main effect of IPC for both child ( $p < .01$ ) and mother ( $p < .05$ ) report of externalizing problems and a significant main effect of positive emotionality for mother report ( $p < .01$ ). The main effect of positive emotionality for child report approached significance ( $p = .075$ ). IPC was significantly, positively related to externalizing problems. Positive emotionality was significantly, negatively related to mother report of externalizing problems. The effect of the covariate, household income, was significantly related to

mother report of externalizing problems ( $p < .05$ ); those with a lower income had higher externalizing problems.

**Regressions for Internalizing Problems.** The second set of models tested whether temperament dimensions moderated the relation between IPC and internalizing problems, controlling for child gender, child age, total number of children, maternal education, and household income.

**Impulsivity.** The interactive effect of IPC and impulsivity was not significant for either child report ( $p = .314$ ; see Table 10) or mother report of internalizing problems ( $p = .636$ ; see Table 11); the main effect of impulsivity was also not significant for child report ( $p = .148$ ) nor mother report of internalizing problems ( $p = .410$ ). However, there was a significant main effect of IPC for both child and mother report of internalizing problems ( $ps < .01$ ). IPC was significantly, positively related to internalizing problems. The effect of the covariate, household income, was significantly related to mother report of internalizing problems ( $p < .05$ ); those with a lower income had higher internalizing problems.

**Negative emotionality.** The interactive effect of IPC was not significant for either child report ( $p = .165$ ; see Table 12) or mother report of internalizing problems ( $p = .435$ ; see Table 13). However, there was a significant main effect of IPC for both child report ( $p < .01$ ) and mother report ( $p < .05$ ) and a significant main effect of negative emotionality for child and mother report of internalizing problems ( $ps < .01$ ). IPC and negative emotionality were significantly, positively related to internalizing problems. The effect of the covariate, gender, was significantly related to child report of internalizing problems ( $p < .05$ ); females had higher internalizing problems.

**Positive emotionality.** The interactive effect of IPC was not significant for either child report ( $p = .843$ ; see Table 14) or mother report of internalizing problems ( $p = .352$ ; see Table 15). However, there was a significant main effect of IPC and a significant main effect of positive emotionality across reporters of internalizing problems ( $ps < .01$ ). IPC was significantly, positively related to internalizing problems. Positive emotionality was significantly, negatively related to internalizing problems. The effect of the covariate, gender, was significantly related to child report ( $p < .05$ ) and mother report ( $p < .01$ ) of internalizing problems; females had higher internalizing problems. The effect of the covariates, total number of children and household income, were also significantly related to mother report of internalizing problems ( $p < .05$ ;  $p < .01$ ); families with fewer children and a lower income had higher internalizing problems.

## **Discussion**

The current study is the first study to examine whether the temperament dimensions of impulsivity, negative emotionality, and positive emotionality interacted with children's reports of conflict to predict internalizing and externalizing problems in a sample of children from divorced families. Although the hypotheses were well grounded in theory and empirical support existed for the potential interactive effects of conflict and temperament dimensions in predicting children's mental health outcomes, the results provided no support for the hypothesized interactive effects. Instead, temperament and conflict each had independent, additive effects on children's internalizing problems and externalizing problems.

This study is one of the few to examine interactive effects of conflict and temperament on children's internalizing problems and externalizing problems and the

first to examine these relations in a divorced sample. This study is also unique in its examination of whether positive emotionality mitigated the effects of conflict on children's internalizing problems and externalizing problems. Further, in the current study, mothers reported on children's temperament dimensions and children reported on their experiences of conflict. Both mothers and children reported on children's internalizing problems and externalizing problems. Cross-informant models provide a more stringent test of the hypotheses by reducing reporter bias, and the use of both mothers and children as reporters of mental health outcomes provides different perspectives on these outcomes.

### **Main Effects**

The current study is one of the few studies to examine the direct effects of conflict and aspects of temperament in the same model. In the only study with children from divorced families, Tschann, Johnston, Kline, and Wallerstein (1989) examined the relations between marital conflict, conflict, and difficult temperament in infancy and total behavior problems, which included both internalizing and externalizing problems. This study did not find significant main effects of any of the three predictors on behavior problems. Two additional studies found significant main effects of conflict and dimensions of temperament in samples of predominantly two-parent families after accounting for the significant interactive effect between temperament and conflict. Davies and Windle (2001) found significant main effects of marital discord and task orientation and rhythmicity, but not adaptability or activity level, on adolescent internalizing problems and externalizing problems (combination of adolescent and mother report), whereas Hentges, Davies and Cicchetti (2015) reported significant effects

of conflict and toddler temperamental irritability on mother report of emotional and behavioral problems representing both internalizing and externalizing problems. In contrast, Pauli-Pott and Beckmann (2007) found a significant interactive effect of conflict and temperament but did not find significant main effects of conflict and temperamental irritability above and beyond the effects accounted for by their interaction.

Consistent with previous findings on predominantly two-parent (e.g., Davies & Cummings, 1994; Davies & Windle, 2001; Fantuzzo et al., 1991; Fauber et al., 1990; Peterson & Zill, 1986) and divorced families (e.g., Amato, 2001; Emery, 1982; Johnston et al., 1987), the majority of the models indicated a significant main effect of conflict on externalizing problems. Conflict was significantly, positively related to child report of externalizing problems in all three models; for mother report of externalizing problems, there was a significant main effect of conflict in the model that contained positive emotionality but not in the models that included negative emotionality or impulsivity. The difference in the pattern of effects across the models in which mothers and children reported on externalizing problems may be due to the fact that children reported on conflict. Within-reporter measures in general, as well as in this study, are more highly correlated with one another than cross-reporter measures, which may reflect the influence of method bias, such as mood state and social desirability of the reporter (Podsakoff, Mackenzie, Lee, & Podsakoff, 2003). Research has shown rater characteristics are sources of bias in studies assessing temperament and children's emotional and behavioral problems (e.g., Achenbach, McConaughy, & Howell, 1987; Najman et al., 2001; Richters, 1992; Seifer, Sameroff, Dickstein, Schiller, & Hayden, 2004; Youngstrom, Loeber, & Stouthamer-Loeber, 2000) and may have contributed to the discrepant findings

of conflict on externalizing problems across child and mother report. It is possible that differences in the magnitude of the main effects of conflict in the models for mother report of externalizing problems that included negative emotionality and impulsivity, as compared to positive emotionality, may be due to a differences in the amount of variance accounted for in externalizing problems by negative emotionality and impulsivity as compared to that accounted for by positive emotionality.

In considering the effects of temperament dimensions on externalizing problems, the finding that impulsivity was significantly, positively related to child report and mother report of externalizing problems is consistent with the findings of the larger body of research on predominantly two-parent (e.g., Colder & Stice, 1998; Eisenberg et al., 2009; Lengua, 2003; Zhou, Lengua, & Wang, 2009) and divorced families (e.g., Lengua, et al., 1999; Lengua, Wolchik, Sandler, & West, 2000). Similarly, the finding of a direct, positive effect of negative emotionality on child and mother report of externalizing problems is consistent with the findings of studies that have used predominantly married samples (e.g., Eisenberg et al., 2009; Lengua, 2003; Lengua & Long, 2002; Oldenhinkel, Hartman, Ferdinand, Verhulst, & Ormel, 2007). In one study of divorced families, the relation between negative emotionality and externalizing problems was significant when mothers reported on externalizing problems and temperament but not when children reported on their externalizing problems or temperament (Lengua et al., 1999). In another study with children from divorced families, nonsignificant effects of negative emotionality were found when a composite of child and mother report of externalizing problems was used (Lengua et al., 2000). The findings for positive emotionality and externalizing problems (significant for mother report, marginal for child report) are

consistent with those of previous studies of divorced families (Lengua et al., 1999; Lengua et al., 2000) and studies of predominantly two-parent families (e.g., Oldenhinkel, Hartman, Winter, Veenstra, & Ormel, 2004; Rydell, Berlin, & Bohlin, 2003).

The main effects of conflict and dimensions of temperament predicting internalizing problems were similar but not identical to those predicting externalizing problems. Across all six models, conflict had a positive relation with internalizing problems. This finding is consistent with those of other studies of divorced samples (e.g., Amato, 2001; Fauber et al., 1990; Ingoldsby et al., 1999; Jekielek, 1998; Johnston et al., 1987; Shaw & Emery, 1987) and predominantly married or mixed samples (e.g., Buchanan & Heiges, 2001; Davies & Cummings, 1994; Davies & Windle, 2001; Gerard, Krishnakumar, & Buehler, 2006; Krishnakumar, Buehler, & Barber, 2003; Peterson & Zill, 1986). A significant positive direct effect of negative emotionality was found in the model with child report of internalizing problems. Studies of predominantly two-parent families (e.g., Eisenberg et al., 2005; Lemery, Essex, & Smider, 2002; Lengua, 2003; Oldenhinkel et al., 2004) and divorced families (Lengua et al., 1999; Lengua et al., 2000) have found main effects of negative emotionality for both child report and parent report of internalizing problems (e.g., Lemery et al., 2002; Lengua, 2003; Lengua & Long, 2002; Oldenhinkel et al., 2004). Finally, the negative direct effect of positive emotionality on internalizing problems was significant in both models. This relation has been primarily tested and found to be significant in studies with two-parent families (e.g., Lengua & Long, 2002; Oldenhinkel et al., 2004). This study is among the few studies to examine this effect in a divorced sample (Lengua et al., 1999; Lengua et al., 2000). Finally, the effect of impulsivity on internalizing problems was not significant, contrary

to the study's hypothesis and inconsistent with the findings of some studies that have found a significant negative relation between impulsivity and internalizing problems (e.g., Eisenberg et al., 2001, 2005; Krueger, Caspi, Moffitt, White, & Stouthamer-Loeber, 1996). However, this finding is consistent with those of other studies of two-parent (e.g., Hagekull, 1994) and divorced families (Lengua et al., 2000) in which there was a nonsignificant effect of impulsivity on internalizing problems (and a significant effect on externalizing problems).

The findings of significant main effects of conflict and temperament support those of prior studies that have found that conflict and temperament are related to children's mental health problems across a variety of sampling, measurement, and data analytic strategies. The current findings extend this body of research by examining the independent effects of these constructs. The independent effects of conflict and different dimensions of temperament on children's post-divorce externalizing problems and internalizing problems highlight the importance of taking both into account when predicting children's post-divorce adjustment problems. Further, in the context of the nonsignificant interaction effects, the findings suggest that the direct, additive effects of conflict and temperament on adjustment problems may be more salient than their interactive effects in predicting children's post-divorce adjustment problems.

### **Interactive Effects**

This study did not find any support for the interactive effects of conflict and temperament dimensions on internalizing problems or externalizing problems. It is important to note that it is unlikely that the null effects were due to the sample size given



that the sample of 355 provided adequate power to detect two-way interactions (Aiken & West, 1991).

The nonsignificant findings are discrepant from those of the three published studies that have found support for the interactive effects of conflict and temperament dimensions (Davies & Windle, 2001; Hentges et al, 2015; Pauli-Pott & Beckmann, 2007). There are several possible reasons for the differences in findings that are related to sample characteristics and design and measurement issues. The children in two of these studies were much younger than those in the current study. It is possible that an interactive effect is more likely to exist for very young children (infants and toddlers) than older children as they have less advanced cognitive abilities and fewer adaptive coping strategies available to process experiences of conflict. Older children's response to conflict may be more affected by the type of attributions assigned to experiences of conflict or coping used in response to conflict and divorce than aspects of temperament. Also, the sample in the current study consisted of divorced families rather than predominantly or exclusively two-parent families. Children's experiences of conflict may differ between two-parent and divorced households. Children from divorced homes may be more likely to be indirectly or deliberately included in their parents' conflict than children in two-parent families, and conflict may be more predictable in divorced families (i.e., occurring before or after visitation). Also, the design of the current study differed from those that have found significant interactive effects. The current study was cross-sectional, whereas the other studies were longitudinal and examined interactive effects over the course of at least one year. Further, different dimensions of temperament were assessed in the studies that found interactive effects. It is possible that temperament

dimensions that assess activity level, approach/withdrawal, flexibility/rigidity, mood quality, rhythmicity, distractibility, persistence, or irritability are more likely to produce interactive effects than the measures used in the current study. Also, two of the studies in which interactive effects were found used laboratory batteries to assess temperament. These temperament eliciting assessment batteries and the use of raters to code temperament may have been more successful in capturing the aspects of temperament that interact with conflict to affect children's outcomes than the current questionnaire measures.

### **Other Findings**

Some significant effects were found in this study that are worth mentioning but are not central to the study hypotheses. Males had significantly higher externalizing problems in all models that contained impulsivity and negative emotionality, with the exception of the model that included impulsivity on child report externalizing problems in which the effect of gender approached significance. These findings are consistent with the larger literature that has shown that boys have higher externalizing problems compared to girls (e.g., Gaub & Carlson, 1997; Hinshaw, 2003; Leadbeater, Kuperminc, Blatt, & Hertzog, 1999; Webster-Stratton, 1996; Zahn-Waxler, Shirtcliff, & Marceau, 2008). Also, girls showed higher levels of internalizing problems than boys in this study, which is consistent with the larger literature (e.g., Leadbeater et al., 1999; Petersen et al., 1993; Twenge & Nolen-Hoeksema, 2002; Zahn-Waxler et al., 2008). Additionally, lower household income was related to higher mother report externalizing problems in the model that contained positive emotionality and to higher mother report internalizing problems in the models that contained negative emotionality and positive emotionality,

which is consistent with studies reporting a negative relation between SES and externalizing problems (Dodge, Pettit, & Bates, 1994; Qi & Kaiser, 2003; Youngstrom et al., 2000) and between SES and internalizing problems (Miech, Caspi, Moffitt, Wright, & Silva, 1999; Wadsworth & Achenbach, 2005; Xue, Leventhal, Brooks-Gunn, & Earls, 2005).

The relation between impulsivity and externalizing problems was significant for externalizing problems across reporters but was nonsignificant for mother and child reports of internalizing problems. This is consistent with the larger literature showing that impulsivity is more highly related to externalizing problems than internalizing problems (e.g. Eisenberg et al., 2004; Hinshaw, 2003; Moffit, Caspi, Rutter, & Silva, 2001; Prinzie et al., 2004), although there is evidence that impulsivity has been linked to depression and internalizing problems in some studies (Eisenberg et al., 2001, 2005, 2009; Krueger et al., 1996; Lengua, West, & Sandler, 1998), but not always in the same direction. Typically, low levels of impulsivity are related to higher internalizing problems (e.g., Eisenberg et al., 2009).

### **Limitations**

It is necessary to note several limitations of the current study. First, there are several aspects of the sample that limit the generalizability of the findings. The sample included only divorced families and was predominantly Caucasian (86%). Also, inclusion was limited to families who had children between the ages of 9 to 12 years old and met several other selection criteria (e.g., mother had not and had no plans of repartnering within time of study, neither mother nor children were receiving psychological treatment, child externalizing problems score on CBCL did not exceed 97th percentile). It is

possible that there was a limited range and variability in conflict scores in the current sample of families that participated in an evaluation of a program to help children adjust to divorce compared to what may be typically seen in a community or clinical sample. Additionally, most families had been physically separated for more than two years when they participated in the study, past the point where the majority of divorced parents are engaged in high levels of conflict (e.g., Kelly, 2012). Thus, the findings of this study may not generalize to families that have been physically separated less than two years or are engaging in high levels of conflict. Second, although the measure of conflict used is a well-established and commonly used measure, it was developed and validated with a community sample of children who lived with both parents (Grych et al., 1992). Most of the questions ask about witnessing and directly observing conflict in physical interactions between the parents (e.g., “I never see my parents arguing or disagreeing,” and “My parents get really mad when they argue”). It is possible that this measure does not comprehensively capture the experiences of children in divorced families. Children from divorced families may more often be indirectly put in the middle of their parents’ conflicts than children in two-parent families. For example, conflict in divorced families is often communicated through means such as asking intrusive questions about children’s interactions with the other parent, asking questions about the other parent’s private life, and hindering the child’s relationship with the other parent. Third, there are important aspects of children’s post-divorce experiences, such as the visitation arrangements and frequency of contact between the parents and between the father and child that were not taken into account. Fourth, it is possible that temperament dimensions that mitigate or exacerbate the relation between conflict and temperament dimensions were not assessed

by the measures used in the current study (e.g., rhythmicity, approach/withdrawal, persistence). Finally, the cross-sectional nature of the current study limits the ability to make causal inferences about the relations between conflict and temperament dimensions and children's internalizing and externalizing problems, as children's behavior and parents' behavior bidirectionally impact one another.

### **Future Research**

One direction for future research is to test the interactive effects of conflict and temperament dimensions with a more representative sample of divorced families using a measure of conflict that better taps conflict in divorced families and temperament dimensions that have shown interactive effects in other studies. A second issue concerns whether interactive effects differ across family composition. Studies that include divorced and two-parent families could help to shed light on whether family composition affects the interactive relation between conflict and temperament. A third issue concerns the frequency of contact between a child and the nonresidential parent and between the parents. Because higher levels of contact can provide more opportunities for parents to engage in conflict, these variables should be taken into account in future studies with divorced samples. An additional research question would be to study how the relations between temperament, conflict, and mental health problems differ across development. Further, studies that examine whether children characterized by multiple negative dimensions and a lack of positive temperament dimensions may be at higher risk for maladjustment in the face of conflict than those with fewer negative dimensions and more positive temperament dimensions would be useful.

### **Implications for Prevention Science**

These results have implications for interventions geared towards helping children adjust to parental divorce. Two evidence-based interventions have been developed for parents, the New Beginnings Program (Wolchik, Sandler, Weiss, & Winslow, 2007) and Parenting Through Change (Forgatch & Degarmo, 1999). These psychoeducational programs focus primarily on teaching parents skills in building positive parent-child relationships and providing effective discipline and include a limited focus on managing interpersonal or interparental conflict. Both programs have been shown to have long-term effects on children's outcomes including internalizing and externalizing problems (e.g., DeGarmo, Patterson, & Forgatch, 2004; Wolchik et al., 2013). The current results suggest that these programs could be improved by including more information on the ways that children can be affected by divorce experiences, such as conflict, and their temperament. Specifically, more time could be devoted to educating parents on the ways their children may be affected by experiences of conflict and helping parents reduce children's exposure to conflict. Additionally, programs could focus more attention on helping parents to understand the interplay between children's temperament and parents' behaviors. The Triple P Positive Parenting Program (Sanders, 1999) provides one example of a program that educates parents on both environmental and intrapersonal factors that can affect children's behavior and the parent-child relationship, such as parenting behaviors and children's temperament respectively, and could be used as a model for increasing time spent on these important areas and influences on children's post-divorce adjustment.

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APPENDIX A

TABLES

Table 1

*Descriptive Information on Study Variables*

Variable	N	<i>M</i> ( <i>SD</i> )	Range	Skewness	Kurtosis
Interparental conflict	353	22.25 (5.33)	13.00 - 37.00	.35	-.48
Negative emotionality	294	25.12 (6.54)	9.00 - 42.00	.18	-.44
Positive emotionality	294	30.90 (4.58)	11.00 - 35.00	-1.50	2.48
Impulsivity	296	42.39 (7.62)	20.58 - 64.00	.01	-.01
Child report externalizing	355	8.40 (7.00)	0.00 - 45.00	1.58	4.01
Mother report externalizing	354	11.38 (7.63)	0.00 - 40.22	.89	.80
Child report internalizing <sup>a</sup>	355	.00 (.90)	-1.43 - 3.44	.71	.44
Child report anxiety	355	39.38 (6.52)	28.00 - 55.00	.18	-.83
Child report depression	355	7.08 (6.40)	0.00 - 41.63	1.61	3.98
Mother report internalizing	354	11.87 (7.75)	0.00 - 42.00	1.05	1.09
Child Age	355	10.35 (1.11)	9.00 - 12.00	.21	-1.30
Child Gender <sup>b</sup>	355	.51 (.50)	0.00 - 1.00		
Total Number of Children	355	2.40 (1.11)	1.00 - 7.00	1.34	2.47
Maternal Education <sup>c</sup>	355	4.84 (1.24)	1.00 - 7.00	-.53	.07
Household Income <sup>d</sup>	355	25,007.04 (14,418.46)	5,000.00 - 105,000.00	1.68	5.29

<sup>a</sup> Child report Internalizing Problems was created by standardizing and averaging raw scores on separate measures of child report anxiety from the RCMAS and depression from the CDI. <sup>b</sup> Gender is coded 0 = female, 1 = male. <sup>c</sup> Maternal education is coded as 1= 8th grade or less, 2= 9th-11th grade, 3=12th grade, high school diploma, GED, 4= 1 year college, vocational/technical training, 5= 2 years college or technical, AA degree, 6= 3 years, but no college degree, 7= BS or BA degree, 8=MS, MA, MFA, etc., 9= Ph.D., JD, MD, etc. <sup>d</sup> Household income is the median value of the range of gross income in which income fell.

Table 2

*Intercorrelations of Study Variables*

Variable	1	2	3	4	5	6	7	8
1. Interparental conflict <sup>a</sup>	--	--	--	--	--	--	--	--
2. Negative emotionality <sup>b</sup>	.12*	--	--	--	--	--	--	--
3. Positive emotionality <sup>b</sup>	-.08	-.41**	--	--	--	--	--	--
4. Impulsivity <sup>c</sup>	.13*	.27**	.14*	--	--	--	--	--
5. Child report externalizing <sup>d</sup>	.29**	.19**	-.14*	.20**	--	--	--	--
6. Mother report externalizing <sup>e</sup>	.16**	.60**	-.27**	.47**	.42**	--	--	--
7. Child report internalizing <sup>d</sup>	.36**	.25**	-.19**	.11	.54**	.31**	--	--
8. Mother report internalizing <sup>e</sup>	.20**	.53**	-.43**	.07	.30**	.60**	.37**	--

\*\*p < .01; \*p < .05

<sup>a</sup>n = 353; <sup>b</sup>n = 294; <sup>c</sup>n = 296; <sup>d</sup>n = 355; <sup>e</sup>n = 354.



Table 3

*Intercorrelations of Study Outcome Variables and Potential Covariates*

Variable	Child report externalizing <sup>a</sup>	Mother report externalizing <sup>b</sup>	Child report internalizing <sup>a</sup>	Mother report internalizing <sup>b</sup>
Child Age	.03	-.08	-.12*	-.05
Child Gender <sup>c</sup>	.12*	.14*	-.08	-.03
Number of Children in Home	.03	.00	.07	-.08
Total Number of Children	.04	.00	.12*	-.07
Maternal Age	-.05	-.02	-.05	-.08
Racial or Ethnic Background <sup>d</sup>	.03	.05	.10	.02
Maternal Education <sup>e</sup>	.03	-.04	-.11*	.00
Time Since Separation	.00	.03	.05	.03
Time Since Divorce	.00	-.08	.00	-.01
Household Income <sup>f</sup>	-.06	-.12*	-.09	-.11*
Per Capita Income	-.07	-.09	-.07	-.06

\* $p < .05$ <sup>a</sup>  $n = 355$ ; <sup>b</sup>  $n = 354$ <sup>c</sup> Gender is coded 0 = female, 1 = male.<sup>d</sup> Mother's racial or ethnic background is coded as 0 = White, non-Hispanic, 1 = Other.<sup>e</sup> Maternal education is coded as 1 = 8th grade or less, 2 = 9th-11th grade, 3 = 12th grade, high school diploma, GED, 4 = 1 year college, vocational/technical training, 5 = 2 years college or technical, AA degree, 6 = 3 years, but no college degree, 7 = BS or BA degree, 8 = MS, MA, MFA, etc., 9 = Ph.D., JD, MD, etc.; Spearman correlations are reported.<sup>f</sup> Household income is the median value of the range of gross income in which income fell.

Table 4

*Regressions of Child Report Externalizing Problems on Covariates, Interparental Conflict, Impulsivity, and Interparental Conflict x Impulsivity Interaction Term*

Variable	<i>B</i> ( <i>SE B</i> )	<i>p</i>
Child Age	.44 (.32)	.177
Child Gender <sup>a</sup>	1.37† (.7)	.054
Total Number of Children	.17 (.32)	.588
Maternal Education <sup>b</sup>	.50† (.30)	.092
Household Income <sup>c</sup>	-.03 (.03)	.325
Interparental Conflict	<b>.36**</b> (.07)	<b>.000</b>
Impulsivity	<b>.17**</b> (.06)	<b>.002</b>
Interparental Conflict x Impulsivity Interaction Term	.00 (.01)	.984

\*\**p* < .01; \**p* < .05; †*p* < .10

<sup>a</sup> Gender is coded 0 = female, 1 = male.

<sup>b</sup> Maternal education is coded as 1 = 8th grade or less, 2 = 9th-11th grade, 3 = 12th grade, high school diploma, GED, 4 = 1 year college, vocational/technical training, 5 = 2 years college or technical, AA degree, 6 = 3 years, but no college degree, 7 = BS or BA degree, 8 = MS, MA, MFA, etc., 9 = Ph.D., JD, MD, etc.

<sup>c</sup> Household income is the median value of the range of gross income in which income fell.

Table 5

*Regressions of Mother Report Externalizing Problems on Covariates, Interparental*

*Conflict, Impulsivity, and Interparental Conflict x Impulsivity Interaction Term*

Variable	<i>B</i> ( <i>SE B</i> )	<i>p</i>
Child Age	-.20 (.33)	.544
Child Gender <sup>a</sup>	<b>1.72*</b> (.72)	<b>.017</b>
Total Number of Children	-.02 (.33)	.958
Maternal Education <sup>b</sup>	-.10 (.31)	.756
Household Income <sup>c</sup>	-.03 (.03)	.221
Interparental Conflict	.11 (.07)	.114
Impulsivity	<b>.47**</b> (.05)	<b>.000</b>
Interparental Conflict x Impulsivity Interaction Term	.00 (.01)	.913

\*\**p* < .01; \**p* < .05; †*p* < .10

<sup>a</sup> Gender is coded 0 = female, 1 = male.

<sup>b</sup> Maternal education is coded as 1 = 8th grade or less, 2 = 9th-11th grade, 3 = 12th grade, high school diploma, GED, 4 = 1 year college, vocational/technical training, 5 = 2 years college or technical, AA degree, 6 = 3 years, but no college degree, 7 = BS or BA degree, 8 = MS, MA, MFA, etc., 9 = Ph.D., JD, MD, etc.

<sup>c</sup> Household income is the median value of the range of gross income in which income fell.

Table 6

*Regressions of Child Report Externalizing Problems on Covariates, Interparental Conflict, Negative Emotionality, and Interparental Conflict x Negative Emotionality Interaction Term*

Variable	<i>B</i> ( <i>SE B</i> )	<i>p</i>
Child Age	.37 (.32)	.252
Child Gender <sup>a</sup>	<b>1.39*</b> (.70)	<b>.049</b>
Total Number of Children	.19 (.32)	.552
Maternal Education <sup>b</sup>	.51† (.30)	.085
Household Income <sup>c</sup>	-.03 (.03)	.316
Interparental Conflict	<b>.36**</b> (.07)	<b>.000</b>
Negative Emotionality	<b>.18**</b> (.07)	<b>.007</b>
Interparental Conflict x Negative Emotionality Interaction Term	-.01 (.01)	.402

\*\**p* < .01; \**p* < .05; †*p* < .10

<sup>a</sup> Gender is coded 0 = female, 1 = male.

<sup>b</sup> Maternal education is coded as 1 = 8th grade or less, 2 = 9th-11th grade, 3 = 12th grade, high school diploma, GED, 4 = 1 year college, vocational/technical training, 5 = 2 years college or technical, AA degree, 6 = 3 years, but no college degree, 7 = BS or BA degree, 8 = MS, MA, MFA, etc., 9 = Ph.D., JD, MD, etc.

<sup>c</sup> Household income is the median value of the range of gross income in which income fell.

Table 7

*Regressions of Mother Report Externalizing Problems on Covariates, Interparental Conflict, Negative Emotionality, and Interparental Conflict x Negative Emotionality Interaction Term*

Variable	<i>B</i> ( <i>SE B</i> )	<i>p</i>
Child Age	-.27 (.30)	.379
Child Gender <sup>a</sup>	<b>1.69*</b> (.66)	<b>.011</b>
Total Number of Children	.07 (.31)	.820
Maternal Education <sup>b</sup>	-.07 (.28)	.787
Household Income <sup>c</sup>	-.03 (.02)	.298
Interparental Conflict	.08 (.06)	.202
Negative Emotionality	<b>.67**</b> (.07)	<b>.000</b>
Interparental Conflict x Negative Emotionality Interaction Term	.00 (.01)	.839

\*\**p* < .01; \**p* < .05; †*p* < .10

<sup>a</sup> Gender is coded 0 = female, 1 = male.

<sup>b</sup> Maternal education is coded as 1 = 8th grade or less, 2 = 9th-11th grade, 3 = 12th grade, high school diploma, GED, 4 = 1 year college, vocational/technical training, 5 = 2 years college or technical, AA degree, 6 = 3 years, but no college degree, 7 = BS or BA degree, 8 = MS, MA, MFA, etc., 9 = Ph.D., JD, MD, etc.

<sup>c</sup> Household income is the median value of the range of gross income in which income fell.

Table 8

*Regressions of Child Report Externalizing Problems on Covariates, Interparental Conflict, Positive Emotionality, and Interparental Conflict x Positive Emotionality Interaction Term*

Variable	<i>B</i> ( <i>SE B</i> )	<i>p</i>
Child Age	.35 (.32)	.284
Child Gender <sup>a</sup>	1.28† (.73)	.079
Total Number of Children	.15 (.32)	.637
Maternal Education <sup>b</sup>	.57† (.30)	.059
Household Income <sup>c</sup>	-.03 (.03)	.196
Interparental Conflict	<b>.37**</b> (.07)	<b>.000</b>
Positive Emotionality	-.17† (.10)	.075
Interparental Conflict x Positive Emotionality Interaction Term	.01 (.02)	.600

\*\**p* < .01; \**p* < .05; †*p* < .10

<sup>a</sup> Gender is coded 0 = female, 1 = male.

<sup>b</sup> Maternal education is coded as 1 = 8th grade or less, 2 = 9th-11th grade, 3 = 12th grade, high school diploma, GED, 4 = 1 year college, vocational/technical training, 5 = 2 years college or technical, AA degree, 6 = 3 years, but no college degree, 7 = BS or BA degree, 8 = MS, MA, MFA, etc., 9 = Ph.D., JD, MD, etc.

<sup>c</sup> Household income is the median value of the range of gross income in which income fell.

Table 9

*Regressions of Mother Report Externalizing Problems on Covariates, Interparental Conflict, Positive Emotionality, and Interparental Conflict x Positive Emotionality Interaction Term*

Variable	<i>B</i> ( <i>SE B</i> )	<i>p</i>
Child Age	-.48 (.36)	.180
Child Gender <sup>a</sup>	1.40† (.79)	.077
Total Number of Children	-.07 (.35)	.843
Maternal Education <sup>b</sup>	.08 (.33)	.799
Household Income <sup>c</sup>	<b>-.06* (.03)</b>	<b>.047</b>
Interparental Conflict	<b>.17* (.07)</b>	<b>.025</b>
Positive Emotionality	<b>-.43** (.10)</b>	<b>.000</b>
Interparental Conflict x Positive Emotionality Interaction Term	.03 (.02)	.191

\*\**p* < .01; \**p* < .05; †*p* < .10

<sup>a</sup> Gender is coded 0 = female, 1 = male.

<sup>b</sup> Maternal education is coded as 1 = 8th grade or less, 2 = 9th-11th grade, 3 = 12th grade, high school diploma, GED, 4 = 1 year college, vocational/technical training, 5 = 2 years college or technical, AA degree, 6 = 3 years, but no college degree, 7 = BS or BA degree, 8 = MS, MA, MFA, etc., 9 = Ph.D., JD, MD, etc.

<sup>c</sup> Household income is the median value of the range of gross income in which income fell.

Table 10

*Regressions of Child Report Internalizing Problems<sup>a</sup> on Covariates, Interparental*

*Conflict, Impulsivity, and Interparental Conflict x Impulsivity Interaction Term*

Variable	<i>B</i> ( <i>SE B</i> )	<i>p</i>
Child Age	-.05 (.04)	.185
Child Gender <sup>b</sup>	-.14 (.09)	.110
Total Number of Children	.06 (.04)	.118
Maternal Education <sup>c</sup>	-.07† (.04)	.085
Household Income <sup>d</sup>	.00 (.00)	.754
Interparental Conflict	<b>.06**</b> (.01)	<b>.000</b>
Impulsivity	.01 (.01)	.148
Interparental Conflict x Impulsivity Interaction Term	.00 (.00)	.314

\*\**p* < .01; \**p* < .05; †*p* < .10

<sup>a</sup> Child report Internalizing Problems was created by standardizing and averaging raw scores on separate measures of child report anxiety from the RCMAS and depression from the CDI.

<sup>b</sup> Gender is coded 0 = female, 1 = male.

<sup>c</sup> Maternal education is coded as 1 = 8th grade or less, 2 = 9th-11th grade, 3 = 12th grade, high school diploma, GED, 4 = 1 year college, vocational/technical training, 5 = 2 years college or technical, AA degree, 6 = 3 years, but no college degree, 7 = BS or BA degree, 8 = MS, MA, MFA, etc., 9 = Ph.D., JD, MD, etc.

<sup>d</sup> Household income is the median value of the range of gross income in which income fell.



Table 11

*Regressions of Mother Report Internalizing Problems on Covariates, Interparental*

*Conflict, Impulsivity, and Interparental Conflict x Impulsivity Interaction Term*

Variable	<i>B</i> ( <i>SE B</i> )	<i>p</i>
Child Age	-.01 (.37)	.971
Child Gender <sup>a</sup>	-.70 (.82)	.390
Total Number of Children	-.71† (.37)	.052
Maternal Education <sup>b</sup>	.25 (.34)	.465
Household Income <sup>c</sup>	<b>-.06*</b> (.03)	<b>.039</b>
Interparental Conflict	<b>.28**</b> (.08)	<b>.000</b>
Impulsivity	.05 (.06)	.410
Interparental Conflict x Impulsivity Interaction Term	-.01 (.01)	.636

\*\**p* < .01; \**p* < .05; †*p* < .10

<sup>a</sup> Gender is coded 0 = female, 1 = male.

<sup>b</sup> Maternal education is coded as 1 = 8th grade or less, 2 = 9th-11th grade, 3 = 12th grade, high school diploma, GED, 4 = 1 year college, vocational/technical training, 5 = 2 years college or technical, AA degree, 6 = 3 years, but no college degree, 7 = BS or BA degree, 8 = MS, MA, MFA, etc., 9 = Ph.D., JD, MD, etc.

<sup>c</sup> Household income is the median value of the range of gross income in which income fell.

Table 12

*Regressions of Child Report Internalizing Problems<sup>a</sup> on Covariates, Interparental Conflict, Negative Emotionality, and Interparental Conflict x Negative Emotionality Interaction Term*

Variable	<i>B</i> ( <i>SE B</i> )	<i>p</i>
Child Age	-.06 (.04)	.131
Child Gender <sup>b</sup>	<b>-.17*</b> (.09)	<b>.047</b>
Total Number of Children	.07† (.04)	.065
Maternal Education <sup>c</sup>	-.07† (.04)	.058
Household Income <sup>d</sup>	.00 (.00)	.885
Interparental Conflict	<b>.05**</b> (.01)	<b>.000</b>
Negative Emotionality	<b>.03**</b> (.01)	<b>.000</b>
Interparental Conflict x Negative Emotionality Interaction Term	.00 (.00)	.165

\*\**p* < .01; \**p* < .05; †*p* < .10

<sup>a</sup> Child report Internalizing Problems was created by standardizing and averaging raw scores on separate measures of child report anxiety from the RCMAS and depression from the CDI.

<sup>b</sup> Gender is coded 0 = female, 1 = male.

<sup>c</sup> Maternal education is coded as 1 = 8th grade or less, 2 = 9th-11th grade, 3 = 12th grade, high school diploma, GED, 4 = 1 year college, vocational/technical training, 5 = 2 years college or technical, AA degree, 6 = 3 years, but no college degree, 7 = BS or BA degree, 8 = MS, MA, MFA, etc., 9 = Ph.D., JD, MD, etc.

<sup>d</sup> Household income is the median value of the range of gross income in which income fell.

Table 13

*Regressions of Mother Report Internalizing Problems on Covariates, Interparental Conflict, Negative Emotionality, and Interparental Conflict x Negative Emotionality Interaction Term*

Variable	<i>B</i> ( <i>SE B</i> )	<i>p</i>
Child Age	.09 (.32)	.776
Child Gender <sup>a</sup>	-1.14 (.70)	.107
Total Number of Children	-.60† (.32)	.065
Maternal Education <sup>b</sup>	.09 (.30)	.778
Household Income <sup>c</sup>	-.04 (.03)	.129
Interparental Conflict	<b>.17*</b> (.07)	<b>.011</b>
Negative Emotionality	<b>.62**</b> (.06)	<b>.000</b>
Interparental Conflict x Negative Emotionality Interaction Term	.01 (.01)	.435

\*\**p* < .01; \**p* < .05; †*p* < .10

<sup>a</sup> Gender is coded 0 = female, 1 = male.

<sup>b</sup> Maternal education is coded as 1 = 8th grade or less, 2 = 9th-11th grade, 3 = 12th grade, high school diploma, GED, 4 = 1 year college, vocational/technical training, 5 = 2 years college or technical, AA degree, 6 = 3 years, but no college degree, 7 = BS or BA degree, 8 = MS, MA, MFA, etc., 9 = Ph.D., JD, MD, etc.; Spearman correlations are reported.

<sup>c</sup> Household income is the median value of the range of gross income in which income fell.

Table 14

*Regressions of Child Report Internalizing Problems<sup>a</sup> on Covariates, Interparental Conflict, Positive Emotionality, and Interparental Conflict x Positive Emotionality Interaction Term*

Variable	<i>B</i> ( <i>SE B</i> )	<i>p</i>
Child Age	-.06 (.04)	.136
Child Gender <sup>b</sup>	<b>-.21*</b> (.09)	<b>.017</b>
Total Number of Children	.06 (.04)	.104
Maternal Education <sup>c</sup>	-.06† (.04)	.089
Household Income <sup>d</sup>	.00 (.00)	.526
Interparental Conflict	<b>.05**</b> (.01)	<b>.000</b>
Positive Emotionality	<b>-.04**</b> (.01)	<b>.001</b>
Interparental Conflict x Positive Emotionality Interaction Term	.00 (.00)	.843

\*\**p* < .01; \**p* < .05; †*p* < .10

<sup>a</sup> Child report Internalizing Problems was created by standardizing and averaging raw scores on separate measures of child report anxiety from the RCMAS and depression from the CDI.

<sup>b</sup> Gender is coded 0 = female, 1 = male.

<sup>c</sup> Maternal education is coded as 1 = 8th grade or less, 2 = 9th-11th grade, 3 = 12th grade, high school diploma, GED, 4 = 1 year college, vocational/technical training, 5 = 2 years college or technical, AA degree, 6 = 3 years, but no college degree, 7 = BS or BA degree, 8 = MS, MA, MFA, etc., 9 = Ph.D., JD, MD, etc.; Spearman correlations are reported.

<sup>d</sup> Household income is the median value of the range of gross income in which income fell.

Table 15

*Regressions of Mother Report Internalizing Problems on Covariates, Interparental Conflict, Positive Emotionality, and Interparental Conflict x Positive Emotionality Interaction Term*

Variable	<i>B</i> ( <i>SE B</i> )	<i>p</i>
Child Age	.01 (.34)	.987
Child Gender <sup>a</sup>	<b>-1.94**</b> (.75)	<b>.009</b>
Total Number of Children	<b>-.72*</b> (.34)	<b>.032</b>
Maternal Education <sup>b</sup>	.17 (.31)	.586
Household Income <sup>c</sup>	<b>-.07**</b> (.03)	<b>.009</b>
Interparental Conflict	<b>.22**</b> (.07)	<b>.002</b>
Positive Emotionality	<b>-.74**</b> (.09)	<b>.000</b>
Interparental Conflict x Positive Emotionality Interaction Term	-.02 (.02)	.352

\*\**p* < .01; \**p* < .05; †*p* < .10

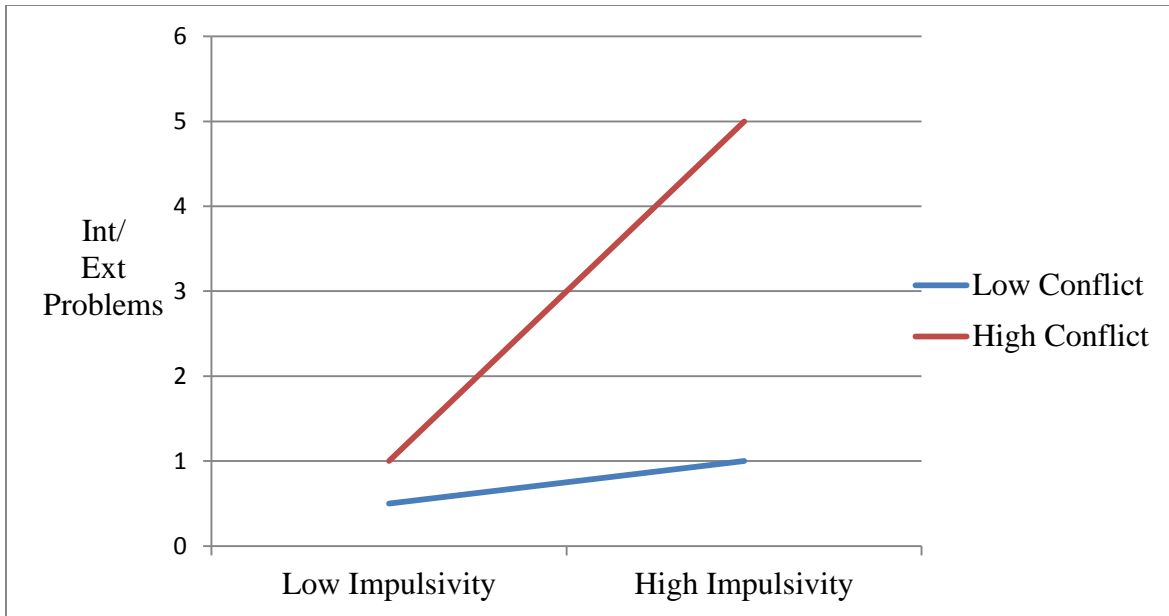
<sup>a</sup> Gender is coded 0 = female, 1 = male.

<sup>b</sup> Maternal education is coded as 1 = 8th grade or less, 2 = 9th-11th grade, 3 = 12th grade, high school diploma, GED, 4 = 1 year college, vocational/technical training, 5 = 2 years college or technical, AA degree, 6 = 3 years, but no college degree, 7 = BS or BA degree, 8 = MS, MA, MFA, etc., 9 = Ph.D., JD, MD, etc.; Spearman correlations are reported.

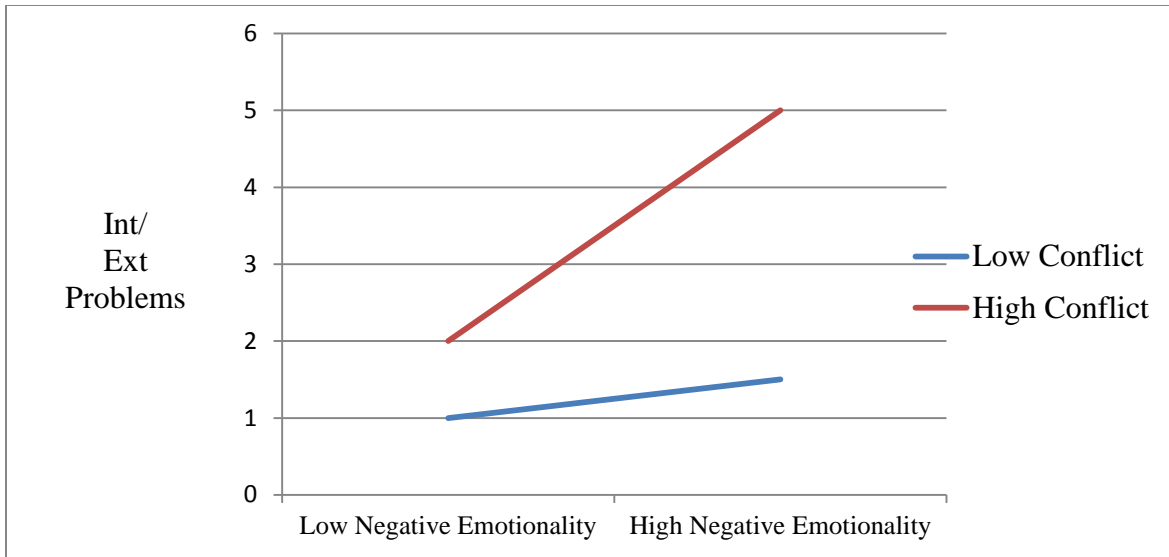
<sup>c</sup> Household income is the median value of the range of gross income in which income fell.

APPENDIX B

FIGURES

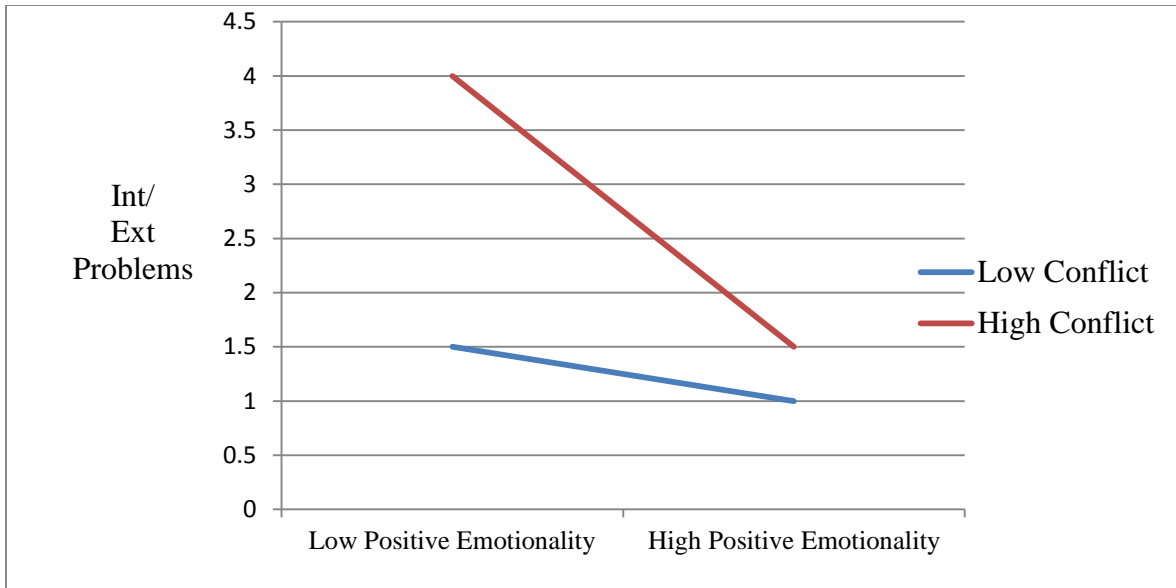


*Figure 1.* Hypothesized interaction between impulsivity and children's internalizing and externalizing outcomes.



*Figure 2.* Hypothesized interaction between negative emotionality and children's internalizing and externalizing outcomes.





*Figure 3.* Hypothesized interaction between positive emotionality and children's internalizing and externalizing outcomes.

## APPENDIX C

### CHILDREN'S PERCEPTION OF INTERPARENTAL CONFLICT SCALE

## Interparental Conflict

### *Child Report*

	Frequency
1.	I never see my parents arguing or disagreeing.
2.	They may not think I know it, but my parents argue or disagree a lot.
3.	My parents are often mean to each other even when I'm around.
4.	I often see my parents arguing.
5.	My parents hardly ever argue.
6.	My parents often nag and complain about each other around the house.
	Intensity
7.	My parents get really mad when they argue.
8.	When my parents have a disagreement, they discuss it quietly.
9.	When my parents have an argument, they say mean things to each other.
10.	When my parents have an argument, they yell a lot.
11.	My parents hardly ever yell when they have a disagreement.
12.	My parents have broken or thrown things during an argument.
13.	My parents have pushed or shoved each other during an argument.

APPENDIX D

CHILDREN'S BEHAVIOR QUESTIONNAIRE

## Temperament – Impulsivity

### *Mother Report*

1.	My child usually rushes into an activity without thinking about it.
2.	My child sometimes interrupts others when they are speaking.
3.	My child decides what s/he wants very quickly and goes after it.
4.	My child often rushes into new situations.
5.	My child takes a long time in approaching new situations.
6.	My child usually stops and thinks things over before deciding to do something.
7.	My child is slow and unhurried in deciding what to do next.
8.	My child tends to say the first thing that comes to mind, without stopping to think about it.
9.	My child when eager to go outside, sometimes rushes out without putting on the right clothes.
10.	My child approaches slowly places where s/he might hurt her/himself.
11.	My child when s/he sees a toy or game s/he wants, is eager to have it right then.
12.	My child is among the last children to try out a new activity.
13.	My child is “slow to warm up” to others.

APPENDIX E

EMOTIONALITY, ACTIVITY, AND SOCIABILITY TEMPERAMENT SURVEY  
FOR CHILDREN

## Temperament - Negative Emotionality

### *Mother Report*

1.	My child is easily frightened.
2.	My child frequently gets distressed.
3.	My child often seems to feel frustrated.
4.	My child is troubled by everyday events.
5.	My child has fewer fears than others his/her age.
6.	When displeased, my child lets people know it.
7.	My child is known as hot-blooded or quick-tempered.
8.	My child gets annoyed by many things.
9.	It takes a lot to get my child mad.

## APPENDIX F

### REVISED DIMENSIONS OF TEMPERAMENT SURVEY



## **Temperament - Positive Emotionality**

### ***Mother Report***

1.	My child laughs and smiles at a lot of things.
2.	My child does not laugh or smile at a lot of things.
3.	My child smiles often.
4.	I do not find my child laughing often.
5.	My child's mood is generally cheerful.
6.	Generally, my child is happy.

APPENDIX G

CHILDREN'S DEPRESSION INVENTORY

## Child Internalizing Problems – Depressive Symptoms

### *Child Report*

1.	I am sad once in a while. I am sad many times. I am sad all the time.
2.	Nothing will ever work out for me. I am not sure if things will work out for me. Things will work out for me O.K.
3.	I do most things O.K. I do many things wrong. I do everything wrong.
4.	I have fun in many things. I have fun in some things. Nothing is fun at all.
5.	I am important to my family. I am not sure if I am important to my family. My family is better off without me.
6.	I hate myself. I do not like myself. I like myself.
7.	All bad things are my fault. Many bad things are my fault. Bad things are not usually my fault.
8.	I do not think about killing myself.

	<p>I think about killing myself but would not do it.</p> <p>I want to kill myself.</p>
9.	<p>I feel like crying every day.</p> <p>I feel like crying many days.</p> <p>I feel like crying once in a while.</p>
10.	<p>I feel cranky all the time.</p> <p>I feel cranky many times.</p> <p>I am almost never cranky.</p>
11.	<p>I like being with people.</p> <p>I do not like being with people many times.</p> <p>I do not want to be with people at all.</p>
12.	<p>I cannot make up my mind about things.</p> <p>It is hard to make up my mind about things.</p> <p>I make up my mind about things easily.</p>
13.	<p>I look O.K.</p> <p>There are some bad things about my looks.</p> <p>I look ugly.</p>
14.	<p>I have to push myself all the time to do my schoolwork.</p> <p>I have to push myself many times to do my schoolwork.</p> <p>Doing schoolwork is not a big problem.</p>
15.	<p>I have trouble sleeping every night.</p> <p>I have trouble sleeping many nights.</p> <p>I sleep pretty well.</p>
16.	<p>I am tired once in a while.</p>

	<p>I am tired many days.</p> <p>I am tired all the time.</p>
17.	<p>Most days I do not feel like eating.</p> <p>Many days I do not feel like eating.</p> <p>I eat pretty well.</p>
18.	<p>I do not worry about aches and pains.</p> <p>I worry about aches and pains many times.</p> <p>I worry about aches and pains all the time.</p>
19.	<p>I do not feel alone.</p> <p>I feel alone many times.</p> <p>I feel alone all the time.</p>
20.	<p>I never have fun at school.</p> <p>I have fun at school only once in a while.</p> <p>I have fun at school many times.</p>
21.	<p>I have plenty of friends.</p> <p>I have some friends but I wish I had more.</p> <p>I do not have any friends.</p>
22.	<p>My schoolwork is alright.</p> <p>My schoolwork is not as good as before.</p> <p>I do very badly in subjects I used to be good in.</p>
23.	<p>I can never be as good as other kids.</p> <p>I can be as good as other kids if I want to.</p> <p>I am just as good as other kids.</p>
24.	<p>Nobody really loves me.</p>

	<p>I am not sure if anybody loves me.</p> <p>I am sure that somebody loves me.</p>
25.	<p>It is easy for me to get along with friends.</p> <p>I get into arguments with friends many times.</p> <p>I get into arguments with friends all the time.</p>
26.	<p>I fall asleep during the day all the time.</p> <p>I fall asleep during the day many times.</p> <p>I almost never fall asleep during the day.</p>
27.	<p>Most days I feel like I can't stop eating.</p> <p>Many days I feel like I can't stop eating.</p> <p>My eating is O.K.</p>
28.	<p>It is easy for me to remember things.</p> <p>It is a little hard to remember things.</p> <p>It is very hard to remember things.</p>

APPENDIX H

REVISED CHIDLREN'S MANIFEST ANXIETY SCALE

## Child Internalizing Problems – Anxiety Symptoms

### *Child Report*

1.	I had trouble making up my mind.
2.	I got nervous when things didn't go right.
3.	Others do things better than I did.
4.	I often had trouble catching my breath.
5.	I worried a lot of the time.
6.	I was afraid of a lot of things.
7.	I got mad easily.
8.	I worried about what my parents would say to me.
9.	I felt others didn't like the way I did things.
10.	It was hard for me to fall asleep at night.
11.	I worried about what others thought of me.
12.	I felt alone even when others were with me.
13.	I often felt sick to my stomach.
14.	My feelings got hurt easily.
15.	My hands got sweaty.
16.	I felt tired a lot.
17.	I worried about what was going to happen.
18.	Other kids were happier than I was.
19.	I had bad dreams.
20.	My feelings got hurt easily when I was fussed at.
21.	I felt someone would say I do things wrong.
22.	I woke up scared some of the time.



23.	I worried when I went to bed at night.
24.	It was hard for me to keep my mind on schoolwork.
25.	I wiggled in my seat a lot.
26.	I was nervous.
27.	A lot of people were against me.
28.	I worried about something bad happening to me.

APPENDIX I

CHILDREN'S BEHAVIOR CHECKLIST

## Child Internalizing Problems

### *Mother Report*

1.	Complains of loneliness
2.	Cries a lot
3.	Fears he/she might think or do something bad
4.	Feels he/she has to be perfect
5.	Feels or complains that no one loves him/her
6.	Feels others are out to get him/her
7.	Feels worthless or inferior
8.	Would rather be alone than with others
9.	Nervous, highstrung, or tense
10.	Too fearful or anxious
11.	Feels dizzy or lightheaded
12.	Feels too guilty
13.	Overtired without good reason
14.	Aches or pains
15.	Headaches
16.	Nausea, feels sick
17.	Problems with eyes
18.	Rashes or other skin problems
19.	Stomachaches
20.	Vomiting, throwing up
21.	Refuses to talk
22.	Secretive, keeps things to self

23.	Self-conscious or easily embarrassed
24.	Too shy or timid
25.	Stares blankly
26.	Sulks a lot
27.	Suspicious
28.	Underactive, slow moving, or lacks energy
29.	Unhappy, sad or depressed
30.	Withdrawn, doesn't get involved with others
31.	Worries

## Child Externalizing Problems

### *Mother Report*

1.	Argues a lot
2.	Bragging, boasting
3.	Cruelty, bullying, or meanness to others
4.	Demands a lot of attention
5.	Destroys his/her own things
6.	Destroys things belonging to his/her family or others
7.	Disobedient at home
8.	Disobedient at school
9.	Doesn't seem to feel guilty after misbehaving
10.	Easily jealous
11.	Gets in many fights
12.	Hangs around with others who get in trouble
13.	Lying or cheating
14.	Physically attacks people
15.	Prefers being with older kids
16.	Runs away from home
17.	Screams a lot
18.	Sets fires
19.	Showing off or clowning
20.	Steals at home
21.	Steals outside the home
22.	Stubborn, sullen, or irritable

23.	Sudden changes in mood or feelings
24.	Swearing or obscene language
25.	Talks too much
26.	Teases a lot
27.	Temper tantrums or hot temper
28.	Thinks about sex too much
29.	Threatens people
30.	Truancy, skips school
31.	Unusually loud
32.	Uses drugs for nonmedical purposes
33.	Vandalism